

1. A depth discriminating sensor for a vehicle safety device comprising:
a wide angle lens having an aperture having an f-stop number;
an electronic imaging element having a pixel size;
the f-stop number and the pixel size jointly selected to create a rear depth of field
5 in the range from about 0.1m to about 3m; and
a signal processor configured to discriminate between objects in the depth of field
and out of the depth of field based on image sharpness and blur.
2. The depth discriminating sensor of claim 1, wherein the f-stop number of the
10 aperture is in the range from about 1.2 to about 1.8.
3. The depth discriminating sensor of claim 1, wherein the f-stop number of the
aperture is in the range from about 1.2 to about 1.5.
- 15 4. The depth discriminating sensor of claim 1, wherein the f-stop number of the
aperture is about 1.2.
5. The depth discriminating sensor of claim 1, wherein the wide angle lens has a
focal length in the range about 3mm and to about 14mm.
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6. The depth discriminating sensor of claim 1, wherein the wide angle lens has a
focal length in the range from about 5mm to about 10mm.

7. The depth discriminating sensor of claim 1, wherein the wide angle lens has a focal length of about 8mm.
8. The depth discriminating sensor of claim 1, wherein the rear depth of field is about 1.2m.
9. The depth discriminating sensor of claim 1, wherein the electronic imaging element has a pixel size in the range from about 2 μ m to about 6 μ m.
10. The depth discriminating sensor of claim 1, wherein the electronic imaging element has a pixel size in the range from about 3 μ m to about 5 μ m.
11. The depth discriminating sensor of claim 1, wherein the electronic imaging element has a pixel size of about 3 μ m.
12. The depth discriminating sensor of claim 1, wherein an object at a distance from the sensor in the range from about 0.1m to about 2.0m is in focus.
13. The depth discriminating sensor of claim 1, wherein an object at a distance from the sensor in the range from about 1.0m to about 6.0m is in focus.

14. A depth discriminating sensor for a vehicle safety device comprising:
a wide angle lens having an aperture having an f-stop number in the range from about 1.2 to about 1.8;
an electronic imaging element having a pixel size in the range from about 2 μ m to about 6 μ m;
the f-stop number and the pixel size jointly selected to create a rear depth of field in the range from about 0.1m to about 3m; and
a signal processor configured to discriminate between objects in the depth of field and out of the depth of field based on image sharpness and blur.
15. The depth discriminating sensor of claim 14, wherein the f-stop number is in the range from about 1.2 to about 1.5.
16. The depth discriminating sensor of claim 14, wherein the f-stop number of the aperture is about 1.2.
17. The depth discriminating sensor of claim 14, wherein the wide angle lens has a focal length in the range from about 3mm to about 14mm.
18. The depth discriminating sensor of claim 14, wherein the wide angle lens has a focal length in the range from about 5mm to about 10mm.

19. The depth discriminating sensor of claim 14, wherein the rear depth of field is about 1.2m.

20. The depth discriminating sensor of claim 14, wherein the electronic imaging element has a pixel size in the range from about 3 μ m to about 5 μ m.

21. The depth discriminating sensor of claim 14, wherein the electronic imaging element has a pixel size of about 3 μ m.

22. The depth discriminating sensor of claim 14, wherein an object at a distance from the sensor in the range from about 0.1m to about 2.0m is in focus.

23. The depth discriminating sensor of claim 14, wherein an object at a distance from the sensor in the range from about 1.0m to about 6.0m is in focus.

24. A depth discriminating optical sensor for a vehicle safety device comprising:
a wide angle lens having a focal length in the range from about 3mm and about
14mm;
an aperture having an f-stop number in the range from about 1.2 to about 1.5;
5 an electronic imaging element having a pixel size in the range from about 2 μ m to
about 6 μ m;
the f-stop number and the pixel size jointly selected to create a rear depth of field
in the range from about 0.1m to about 3m; and
a signal processor configured to discriminate between objects in the depth of field
10 and out of the depth of field based on image sharpness and blur.
25. The depth discriminating sensor of claim 24, wherein the aperture is about 1.2.
26. The depth discriminating sensor of claim 24, wherein the wide angle lens has a
15 focal length in the range from about 5mm to about 10mm.
27. The depth discriminating sensor of claim 24, wherein the wide angle lens has a
focal length of about 8mm.
28. The depth discriminating sensor of claim 24, wherein the rear depth of field is
20 about 1.16m.

29. The depth discriminating sensor of claim 24, wherein the electronic imaging element has a pixel size in the range from about 3 μ m to about 5 μ m.

30. The depth discriminating sensor of claim 24, wherein the electronic imaging element has a pixel size of about 3 μ m.

31. The depth discriminating sensor of claim 24, wherein an object at a distance from the sensor in the range from about 0.1m to about 2.0m is in focus.

32. The depth discriminating sensor of claim 24, wherein an object at a distance from the sensor in the range from about 1.0m to about 6.0m is in focus.